Indiana Department of Transportation

SR 37 EA/CORRIDOR STUDY
from Noblesville to Marion

ECONOMIC ANALYSIS

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SECTION 1 - INTRODUCTION

1.1 Study Issues

The regional economic analysis component of the SR 37 EA/Corridor Study is an economic-oriented analysis that examines the condition of the existing facility, and appropriate measures and timing to address any deficiencies (needs) within the context of regional economic activity. The EA/Corridor Study is looking at a variety of route options and highway type alternatives. The economic analysis will present findings on whether or not any of the corridor investments are feasible. In general, a study would assess the feasibility of a given alternative using the following six tests:

1. Ability to meet the Purpose and Need defined for the study corridor.

2. Need Based on Traffic—Do any of the highway options need to be built to handle current and forecasted traffic volumes, and if the latter applies, what time frame is reasonable?

3. Engineering and Cost—Are there any unusual engineering difficulties, and what would each alternative improvement cost the agency?

4. Environmental—Does the alternative have any environmental fatal flaws, and is mitigation for environmental impacts available?

5. Travel Efficiency—Will the highway improvements cause sufficient road user benefits to warrant the investment?

6. Economic Development—Will the highway improvements cause sufficient economic activity to justify the investment?

For purposes of this economic analysis, the study team will be reviewing travel efficiency and economic development feasibility. The other tests mentioned above will be assessed in the manner relevant to an EA/corridor study.

1.2 Study Rationale For Economic Analysis

The need for a regional economic analysis of this type is apparent when one understands the perspectives of those involved in making highway corridor investment decisions. Many of the corridor's residents and business leaders feel that they need upgraded highway facilities. Also, there are insufficient funds currently available in the Indiana Department of Transportation's (INDOT) budget to build every new highway that is desired. Rational, prudent and careful allocation of funds is therefore necessary.

Some residents of the corridor envision great benefits from improved highways—increased intercity mobility, vehicular safety, increased tourism, improved goods transport, better access to communities, and economic development. Many regional advocates believe that the economic development benefits will exceed the costs associated with a road project, and that the highway improvements must therefore be warranted and economically feasible. The perspectives of INDOT and the Federal Highway Administration (FHWA) of the United States Department of Transportation (USDOT), however, are slightly different. These agencies, which are responsible for administering the highway program and funding, building, and maintaining the highway system, have many requests for improved highways. The federal and state agencies simply do not have the funds that would be needed to respond in the affirmative to all of the requests for highway funding. Nor should these agencies respond affirmatively to every request. It is their duty to see to it that the limited highway monies be programmed for the most needed, most beneficial highways, highway corridors, and highway projects.

1.3 Study Purposes

This regional economic analysis does not evaluate the feasibility of a new highway only on levels of traffic or solely on travel efficiency improvements. Instead, it will determine whether it makes economic development sense to invest large sums of money in the improvement of existing roadways, or a combination of existing roadways, or the construction of new highways on new alignment. The EA/Corridor study includes reviews of alignment options, road standards, traffic demands, conceptual design, costs, economic benefits, and environmental issues, as well as other implications. The primary focus of this analysis, however, is on economics, and what the highway might do for the economy of the corridor, and the area's general well being. The analysis will determine whether major investments are needed, and details what options would provide the greatest economic development benefit and the best return on investment.

An important objective of this analysis is to determine what level of highway investment is warranted in the SR 37 study corridor. There are economic consequences of either underinvesting or overinvesting in highway construction. If the state underinvests in highways, economic development will be inhibited because real and perceived travel costs will be greater, and competitive position will be hindered. There is therefore an economic cost associated with underinvestment in the corridor. If the state overinvests in the corridor, overall efficiency will suffer because those funds could have been put to better, more efficient use elsewhere (other highways could have been built, or existing highways could be maintained to a higher level, or schools could have been built, or money could have been left in the taxpayers' pockets). There is therefore an economic cost associated with overinvestment in the highway corridor.

Recognizing these facts, this regional economic analysis seeks to define those highway investments, and those levels of investment, that are efficient (neither underinvested nor overinvested). This implies efficient and feasible use of tax dollars. The proper level of investment is calculated in terms of travel efficiency and economic development benefits, compared with the highway's costs.

1.4 Existing Methodology for Regional Economic Analysis: MCIBAS

The methodology utilized in this economic analysis closely matches the Major Corridor Investment-Benefit Analysis System (MCIBAS) that was developed previously for INDOT. MCIBAS is a systematic approach for assessing the relative costs and benefits of proposed major highway corridor projects. The purpose of MCIBAS is to assist INDOT in evaluating the effects of major corridor improvement projects on the economy of the state and sub-regions. A complete review of the MCIBAS system is available in *Major Corridor Investment-Benefit Analysis System: Model Documentation*, by Cambridge Systematics, 1998

MCIBAS utilizes the Indiana Statewide Traffic Model to provide the inputs necessary for the traditional analysis of assessing travel efficiency benefits. The traffic model predicts the effects of the highway system improvement on aggregate measures of system wide vehicle-miles of travel (VMT) and vehicle-hours of travel (VHT). These inputs are translated into estimated dollar values for user travel time, travel cost, and safety benefits. The benefits are compared to project cost data to produce a traditional user cost-benefit analysis for the corridor.

The cost-benefit results are then utilized to evaluate the full economic impacts to the corridor by improving SR 37. The information is used to evaluate the direct and secondary economic effects of investing in SR 37. The direct economic elements include:

- Project construction and study area definition;
- Business expansion data;
- Business attraction data; and
- Tourism data.

Together these direct effects lead to secondary effects including:

- Indirect economic effects resulting from additional business sales and associated jobs and income;
- Induced economic effects, resulting from additional business sales; and
- Population effects, resulting from changes in migration rates of households and workers caused by changes in area wages and living costs.

The REMI economic forecasting and simulation model is then used to estimate the full economic impact of the highway project. It takes the direct economic impacts as assessed by the preceding three modules and forecasts the total (direct and secondary) employment, business output, income, and population changes for the next 30 years. MCIBAS then takes the total disposable-income changes forecast by the REMI model, together with total cost and non-business benefit data, and calculates the resulting benefit/cost ratio.

Section 2 of this report contains a more complete discussion of the approach taken by the study team in conducting the regional economic analysis and the elements comprising the analysis. The methodology used in the analysis closely mirrors the approach used by MCIBAS.

SECTION 2 - STUDY AREA TRENDS AND FORECASTS

The analysis of economic trends and forecasts provides a snapshot of the existing economy within the SR 37 study area. Trends and forecasts were assessed four ways: by individual county, by four-county region, statewide, and from a national perspective. Four separate assessments were conducted for each geographic unit, including:

- Economic and Industrial Composition
- Employment Trends and Forecasts
- Population Trends and Forecasts
- Development Trends and Forecasts

2.1 Economic and Industrial Composition

Assessing the economic and industrial composition offers a means of understanding the economic health of the SR 37 study area as compared to the entire state of Indiana and the nation. This assessment analyzes key economic sectors to determine the percentage of total employment for each sector at the study corridor, statewide and national level. The sectors analyzed included farming, agricultural services, manufacturing, construction, wholesale trade, retail trade, services, finance, insurance, and real estate.

Percentages of each sector and total employment at the study corridor level are compared to the mix for the entire state and for the nation. The following sections describe the economic and industrial concentration for the four-county SR 37 study corridor, followed by a more detailed description of the individual counties.

2.1.1 SR 37 Study Area

The four-county study area consists of a diverse economic foundation, with a strong emphasis on agricultural services, construction, wholesale and retail trade, services, finance, insurance and real estate. **Table 2.1.1** displays the economic and industrial composition of the four-county region. Through a comparison between regional employment by industrial sector and the mix of employment at the statewide and national level, one may discern the following trends:

- Over the past 20 years the area has experienced an increase in the total number of jobs by about 63 percent. The only two sectors to see a decrease in employment numbers were farming and manufacturing. Five of the industrial sectors saw growth of over 100 percent, including: agricultural services, construction, wholesale trade, services, and finance, insurance, and real estate.

- Between 1980 and 2000, employment shifted from manufacturing into other sectors of the economy. Manufacturing was the dominant industry in 1980, employing 38,340 workers. By 2000, manufacturing employment dropped to 33,070 employees and fell to third place behind services and retail trade.

- Farming also experienced a decrease in employment numbers during this time period. There was a drop in farming jobs between 1980 and 2000 of over 40 percent. Farming now ranks third from last in number of employees, with only the agricultural services and mining employment sectors falling behind. However, both agricultural services and mining experienced growth during this twenty-year period.

- The retail trade and service industries are usually considered non-basic sectors of the economy, which usually do not export their final products, but serve the needs of the local residents. Both the retail and service sectors employ large numbers of people in the region. Over 100,000 persons were employed in these two sectors of the economy in 2000.

Table 2.1.1
Economic and Industrial Composition of the SR 37 Corridor

Region	1980			2000			Regional Growth		Percent Growth	
	Region	State	Nation (000's)	Region	State	Nation (000's)	Job Growth	Percent Growth	State	Nation
Total Jobs	131,520	2,632,200	114,231	214,200	3,719,540	166,657	82,680	62.8	41.3	45.9
Farm	5,450	117,540	3,798	3,280	76,400	2,967	-2,170	-39.8	-35.0	-21.9
Agricultural Services, Other	1,070	11,550	909	2,690	32,900	2,176	1,620	151.4	184.8	139.4
Mining	300	13,650	1,278	470	10,090	840	170	56.7	-26.1	-34.3
Construction	5,350	125,310	5,654	13,170	224,590	9,270	7,820	146.2	79.2	64.0
Manufacturing	38,340	665,860	20,781	33,070	699,980	19,667	-5,270	-13.7	5.1	-5.4
Transportation, Communications& Public Utilities	5,120	122,970	5,672	6,220	177,690	8,106	1,100	21.5	44.5	42.9
Wholesale Trade	4,650	113,530	5,742	9,690	160,620	7,686	5,040	108.4	41.5	33.9
Retail Trade	22,790	440,360	17,884	41,390	666,540	27,530	18,600	81.6	51.4	53.9
Services	24,440	484,750	25,000	59,550	1,015,980	53,005	35,110	143.7	109.6	112.0
Finance, Insurance & Real Estate	8,140	169,190	8,756	22,680	231,020	12,921	14,540	178.6	36.5	47.6

Note: Includes part-time employees and proprietors; Data for the year 2000 has been projected.
Source: Department of Commerce, Projections provided by Woods and Poole.

2.1.2 Hamilton County

Hamilton County is the southernmost county in the study area. Its county seat, Noblesville, is located just north of Indianapolis. In part, because of its proximity to the Indianapolis metropolitan area, Hamilton County has experienced growth in almost every employment sector during the past twenty years. Prior to World War II the county was made up largely of agricultural land and was sparsely populated. As development moved out of Indianapolis and into surrounding counties, the rural nature of the county and its economic makeup changed with it. **Table 2.1.2** displays the economic and industrial composition of Hamilton County as it has changed since 1980.

Economic growth took place in every sector of the Hamilton County economy. Growth in the retail trade and service sectors dominated growth in Hamilton County. The retail trade sector has increased by 13,780 jobs during the last twenty years, while the services sector has gained 21,650 jobs during that same period. The finance, insurance and real estate sector has become the third largest sector in the county's economy. Growth in finance, insurance and real estate grew by 509 percent, as employers located new facilities in Hamilton County. The county growth rate was over ten times as great as the state average (36 percent) and national average (47 percent). Other economic trends included:

- Manufacturing employment increased in Hamilton County, contrary to trends in the study corridor, state, and nation.

- Farming employment has decreased by almost 40 percent over the last 20 years, while the state and the nation experienced decreases of about 35 and 22 percent, respectively.

- All other employment sectors in Hamilton County have experienced growth at rates greater than those of the state and the nation.

2.1.2 Madison County

Madison County lies between Hamilton and Grant counties in both a geographic and economic sense, as it is located between the two counties and its economic growth was slightly better than Grant County, but not as great as Hamilton County. Madison County experienced growth in nearly all of the industrial sectors over the past twenty years, as displayed in **Table 2.1.2**. Between 1980 and 2000 there was an 8 percent increase in the total number of jobs in the county. This is much lower than the state (41 percent) and national (50 percent), but comparable to the rate for the study corridor. Madison County did experience a decrease of farm employment of about 37 percent, which was higher than the state and national trends. Once again the retail trade and service sectors drove growth in the county economy. The retail sector grew 29 percent or 2,960 jobs and the service sector grew over 69 percent or 7,780 jobs during the last twenty years.

- Growth in sectors such as retail trade and services helped to overcome losses in other employment sectors.

- As a whole, the county experienced a loss of jobs in the farming, manufacturing, and finance, insurance and real estate sectors of the economy.

- Manufacturing employment decreased by 40 percent over the last 20 years while the state experienced an increase of about 5 percent and the nation experienced a decline of approximately 5 percent.

2.1.3 Grant County

Grant County is the most northern of the four counties in the SR 37 study corridor. Presently the county's industry is automotive centered but is beginning to move towards other types of industry and into other economic sectors. Agriculture is also important to the economy of Grant County where farming consists mostly of corn, hogs and soybean production.

As displayed in **Table 2.1.2**, the following changes have occurred in the economic and industrial composition of Grant County. Overall, Grant County had a net gain in employment between 1980 and 2000, going from 37,450 to 40,010 jobs. However, as a whole, Grant County's economy grew at a lesser percentage than did the state or nation. In fact Grant County has lost a greater percentage of employment than has the state or nation in each of the following sectors: farming, agricultural services, manufacturing, transportation, communications and public utilities, finance and insurance, and real estate. Each of these sectors experienced a decrease in jobs while the state and the nation either experienced growth, or only a slight decline in the total number of jobs. Construction was the only sector in the Grant County economy that grew at a similar rate as the state or nation. Even the growth rates in both the service and retail trade sectors in Grant County were well below the state and national rates. Other Grant County trends included:

- The retail and service sectors spurred employment growth in Grant County. Gains in the service sector (73 percent growth since 1980) and retail trade sufficiently overcame decreases in other sectors.

- Construction was the only sector in the Grant County economy that grew at a similar rate as the state or nation.

- Farming employment in Grant County has decreased at a greater rate than in the state or the nation as a whole.

- Manufacturing employment remains a key sector of employment. Although the total number of manufacturing jobs decreased since 1980, manufacturing remains the second largest employment sector in the county. Manufacturing employment decreased from 13,010 to 9,330 in year 2000.

2.1.4 Tipton County

Tipton County is located north of Hamilton County and west of Madison County in the study area. Tipton County is the smallest of the four counties in the study area. Tipton County experienced

growth in nearly all of the industrial sectors over the past twenty years as displayed in **Table 2.1.2**. Between 1980 and 2000 there was a 15.2 percent increase in the total number of jobs in the county. Tipton County did experience a decrease of farm employment of about 38 percent, which was higher than the state and national trends. The retail sector grew 36 percent and the service sector grew over 71 percent during the last twenty years.

- As a whole, the county experienced a loss of jobs in the farming, mining and manufacturing sectors of the economy.

- Mining employment decreased over the past 20 years by 100 percent thus eliminating all mining employment in Tipton County.

- Farming and manufacturing employment decreased at a rate that resembles both the state and national trend.

- Between 1980 and 1995, the agricultural services, retail trade and service sectors each grew by more then 50 percent.

Table 2.1.2
Economic and Industrial Composition of Grant, Hamilton, Madison and Tipton Counties

	1980						2000						Change 1980 to 2000									
	Grant County	Hamilton County	Madison County	Tipton County	State	Nation (000's)	Grant County	Hamilton County	Madison County	Tipton County	State	Nation (000's)	Grant County		Hamilton County		Madison County		Tipton County		State	Nation
													Job Growth	Percent Growth	Job Growth	Percent Growth	Job Growth	Percent Growth	Job Growth	Percent Growth	Percent Growth	Percent Growth
Total Jobs	37,450	30,100	58,330	5,640	2,632,200	114,231	40,010	104,660	63,030	6,500	3,719,540	166,657	2,560	6.8	74,560	247.7	4,700	8.1	860	15.2	41.3	45.9
Farm	1,340	1,360	1,720	1,030	117,540	3,798	740	820	1,080	640	76,400	2,967	-600	-44.8	-540	-39.7	-640	-37.2	-390	-37.9	-35.0	-21.9
Agricultural Services, Other	300	310	360	100	11,550	909	280	1,580	650	180	32,900	2,176	-20	-6.7	1,270	409.7	290	80.6	80	80.0	184.8	139.4
Mining	70	160	60	10	13,650	1,278	60	330	80	0	10,090	840	-10	-14.3	170	106.3	20	33.3	-10	-100.0	-26.1	-34.3
Construction	970	2,220	1,920	240	125,310	5,654	1,750	7,770	3,210	440	224,590	9,270	780	80.4	5,550	250.0	1,290	67.2	200	83.3	79.2	64.0
Manufacturing	13,010	4,530	20,020	780	665,860	20,781	9,330	10,980	12,030	730	699,980	19,667	-3,680	-28.3	6,450	142.4	-7,990	-40.0	-50	-6.4	5.1	-5.4
Transportation, Communications, Public Utilities	1,330	1,680	1,910	200	122,970	5,672	1,100	2,970	1,890	260	177,690	8,106	-230	-17.3	1,290	76.8	-20	1.0	60	30.0	44.5	42.9
Wholesale Trade	870	2,050	1,470	260	113,530	5,742	900	6,860	1,640	290	160,620	7,686	30	3.4	4,810	234.6	170	11.6	30	11.5	41.5	33.9
Retail Trade	5,910	5,820	10,200	860	440,360	17,884	7,460	19,600	13,160	1,170	666,540	27,530	1,550	26.2	13,780	236.8	2,960	29.0	310	36.0	51.4	53.9
Services	6,960	5,500	11,210	770	484,750	25,000	12,090	27,150	18,990	1,320	1,015,980	53,005	5,130	73.7	21,650	393.6	7,780	69.4	550	71.4	109.6	112.0
Finance, Insurance, and Real Estate	1,790	2,900	3,140	310	169,190	8,756	1,730	17,660	3,010	280	231,020	12,921	-60	-3.4	14,760	509.0	-130	-4.1	-30	9.6	36.5	47.6

Note: Includes part-time employees and proprietors; Data for the year 2000 has been projected.
Source: Department of Commerce, Projections provided by Woods and Poole.

2.2 Employment Trends and Forecasts

Employment trends are generally a good indicator of the overall soundness of a region's economy. Again the health of a region's economy can be judged by how it compares statewide or nationally. For instance, over the past several decades, employment at the national level has increased faster than population. This indicates that the total labor force was increasing and that a larger percentage of the total population was in the work force. The general health of a regional economy, like that of the SR 37 study area can be compared to the state or national level to gauge its overall health. If, for instance, employment figures are decreasing or even increasing at a rate that is slower than the national rate, the regional economy is most likely stagnating or in a downturn. Regional economies with employment growth rates that are near or above statewide and national rates are considered to be healthy and even thriving, depending on the comparison. This section focuses on employment trends from 1980 to 2000 and forecasts for year 2000 to 2025.

2.2.1 Total Employment

Total employment in the study area grew at a faster pace than at the state and national level. **Table 2.2.1** displays the trends for total employment at the national, state, and SR 37 study corridor between 1980 and 2025. Total employment in Indiana grew by 29 percent between 1980 and 1995. National employment totals grew by roughly 31 percent. Spurred by growth primarily in Hamilton County, total employment grew by 46 percent in the SR 37 study area.

Again, growth rates varied among the four counties in the study area with Hamilton County driving most of the regional growth. Only Hamilton County grew at a faster pace than the state and the nation between 1980 and 1995. In Hamilton County, employment increased by 52,350 jobs or 174 percent. Grant and Madison and Tipton counties had only small increases in the total employment during this period. In Grant County, the number of jobs grew by 5 percent or an additional 1,910 jobs. Madison County was only slightly higher with an increase in total employment of 7 percent, or 4,250 jobs. Tipton County was higher with an increase in total employment of 9 percent or 530 jobs. Grant, Madison and Tipton counties were still well below the state and national rates.

Projections forecast continued growth in the SR 37 area between now and year 2025. The expectation is that the region will continue to grow at a similar pace over the next twenty-five years. All four counties are expected to have some job growth during these years.

Table 2.2.1
Total Employment Trends 1980-1995 and Employment Forecast 1995-2025

	1980	1985	1990	1995	2000	2010	2025	Percent Change 1980-1995	Percent Change 1995-2025
Grant	37,450	37,310	38,990	39,360	40,010	41,370	46,990	5.1%	19.4%
Hamilton	30,100	39,920	57,640	82,450	104,660	133,250	167,690	174.0%	103.4%
Madison	58,330	58,990	60,680	62,580	63,030	67,710	78,480	7.3%	25.4%
Tipton	5,640	5,690	5,830	6,170	6,500	6,840	7,370	9.4%	19.4%
Region	131,520	141,910	163,140	190,560	214,200	249,170	300,530	44.9%	57.7%
Indiana	2,632,200	2,708,460	3,083,460	3,401,530	3,719,540	4,158,560	4,839,800	29.2%	42.3%
Nation(000's)	114,231	124,473	139,185	149,361	166,657	188,291	222,229	30.8%	48.8%

Note: Includes part-time employees and proprietors; Data for the year 2000 has been projected.
Source: Department of Commerce, Projections provided by Woods and Poole.

2.2.2 Farming Employment

Agriculture is recognized as a "basic" sector of the SR 37 study area's regional economy. A basic sector is defined as an economic sector that exports most of its products out of the region. Usually a region with a strong and growing agricultural sector will also have a strong and expanding local economy. An area with a large agricultural sector will have service and retail industries to provide for the region's farmers and their families.

At a national level, farm employment decreased due in large part to improved efficiencies in agribusiness and new technologies. This decrease has been offset slightly by the growth of other agricultural related services. As indicated in **Table 2.2.2**, the period between 1980 and 1995 witnessed a greater than 20 percent decline in national farm employment. The majority of this decrease occurred in the 1980's. The state of Indiana lost over 35 percent of its farming jobs during this period. Farming in the SR 37 study area decreased by an even greater percentage than that of the state or nation. Within the study corridor, there was a 40 percent decrease (2,200 total jobs) in total farming jobs between 1980 and 1995.

Forecasts for farm employment suggest that the regional, state, and national trends should continue. Continued agribusiness improvements and new technologies should make farming less and less labor intensive. There are expected to be only about 2,620 farming jobs in the study area by the year 2025. This expected decrease of 19 percent is again a slightly higher percentage loss than state and national forecasts. One should not infer that recent trends and future forecasted declines in farming are reflective of a declining regional economy. It merely suggests that for the economy to grow, other basic sectors will have to grow at a rate that surpasses the decline in farm employment.

Table 2.2.2
Farming Employment Trends 1980 to 1995 and Employment Forecasts 1995 to 2025

	1980	1985	1990	1995	2000	2010	2025	Percent Change 1980 – 1995	Percent Change 1995 – 2025
Grant	1,340	1,160	880	760	740	650	570	-43.3%	-25.0%
Hamilton	1,360	1,170	930	810	820	760	680	-40.4%	-16.0%
Madison	1,720	1,510	1,200	1,060	1,080	980	870	-38.4%	-17.9%
Tipton	1,030	920	730	630	640	560	500	-38.8%	-20.6%
Region	5,450	4,760	3,740	3,260	3,280	2,950	2,620	-40.2%	-19.6%
Indiana	117,540	107,730	86,820	76,450	76,400	69,770	62,550	-35.0%	-18.2%
Nation(000's)	3,798	3,466	3,147	2,979	2,967	2,846	2,632	-21.6%	-11.6%

Source: U.S. Department of Commerce, Projections provided by Woods & Poole.

2.2.3 Manufacturing Employment Trends and Forecasts

Manufacturing employment is also recognized as a "basic" sector of a regional economy. Usually a region with a strong and growing manufacturing sector will also have a strong and expanding local economy. An area with a large manufacturing sector has a variety of service and retail industries that provide for the manufacturing industries and their employees.

Manufacturing is another segment of the economy that has declined nationally. As displayed in **Table 2.2.3**, the number of manufacturing jobs in the nation dropped significantly between 1980 and 1995. During this period, the manufacturing sector decreased by 1,579,000 jobs or approximately 8 percent. Recently, this slight negative trend has seemed to reverse; the number of manufacturing jobs in the nation is expected to increase slightly between 1995 and 2025. Manufacturing employment is predicted to increase by about 7 percent between 1995 and 2025 at both state and national levels.

In the SR 37 study area, the manufacturing sector decreased by over 9 percent between 1980 and 1995. This was due to declines in both Grant and Madison counties. The region lost 3,490 manufacturing jobs during this period. Both Grant and Madison counties lost jobs, with Grant County losing 20 percent of its manufacturing jobs and Madison County losing over 28 percent of its manufacturing jobs. However, Hamilton County and Tipton County helped to mitigate the regional loss. Hamilton County alone experienced a 108 percent increase in manufacturing jobs from 1980 to 1995. This increase resulted in 4,900 more manufacturing jobs for the county.

The decrease in manufacturing jobs is projected to continue for Grant, Tipton and Madison counties, and for the region as a whole between 1995 and 2025. Hamilton County should continue to experience growth, but at a lesser rate. Manufacturing employment in the county is still forecasted to grow by 52 percent between now and 2025.

Table 2.2.3
Manufacturing Employment Trends 1980 to 1995 and Employment Forecasts 1995 to 2025

								Percent Change	
	1980	1985	1990	1995	2000	2010	2025	80-95	95-2025
Grant	13,010	12,380	11,900	10,410	9,330	8,230	7,620	-20.0%	-26.8%
Hamilton	4,530	5,480	5,820	9,430	10,980	12,850	14,410	108.2%	52.8%
Madison	20,020	19,340	16,440	14,230	12,030	10,120	9,230	-28.9%	-35.1%
Tipton	780	620	530	800	730	720	720	2.6%	-10.8%
Region	38,340	37,820	34,690	34,870	33,070	31,920	31,980	-9.1%	-8.3%
Indiana	665,860	620,750	645,540	696,030	699,980	720,910	744,390	4.5%	6.9%
Nation(000's)	20,781	19,779	19,635	19,202	19,667	20,085	20,556	-7.6%	7.1%

Source: U.S. Department of Commerce, Projections provided by Woods & Poole.

2.2.4 Retail Trade Employment Trends

The retail trade industry is also a good indicator of the status of a regional economy. As real personal income has been increasing nationally, so has the demand for retail products, which has led to retail trade increasing at a much faster rate than most other economic sectors. Therefore, if the retail trade industry is not significantly increasing, then the region is most likely declining in population (decrease in demand) or personal income is not increasing rapidly, thus indicating a somewhat stagnant economy.

Table 2.2.4 illustrates retail trade employment trends for the SR 37 study region, Indiana, and the entire nation from 1980 until 2025. Between 1980 and 1995, the region gained employment in the retail sector at a higher rate, 65 percent, than the nation, which grew by 24 percent, and the state, which grew by 42 percent.

Hamilton County has also experienced a period of growth in the retail trade sector. The county has experienced growth of over 171 percent, or 10,000 jobs, in retail employment, while Tipton, Grant and Madison counties have experienced much slower growth. Grant County has had an increase in its retail employment of 28 percent, Tipton County increased 25 percent and Madison County has had an increase of 29 percent during the same period.

Growth in retail employment is expected to continue through 2025, but at a much slower rate in the counties, region, and state although not in the nation as a whole. Retail employment is expected to increase by 60 percent for the entire nation. The state of Indiana is anticipated to experience growth in this sector of over 32 percent while the region will see growth of approximately 49 percent. The county growth rates are expected to decrease by more than half between 1995 and 2025 but all will continue to see some growth.

Table 2.2.4
Retail Trade Employment Trends 1980 to 1995 and Employment Forecasts 1995 to 2025

	1980	1985	1990	1995	2000	2010	2025	Percent Change 1980-1995	Percent Change 1995-2025
Grant	5,910	6,210	6,910	7,580	7,460	7,800	8,910	28.3%	17.5%
Hamilton	5,820	6,880	9,940	15,820	19,600	24,210	29,740	171.8%	88.0%
Madison	10,200	10,660	12,170	13,170	13,160	13,730	16,020	29.1%	21.6%
Tipton	860	930	1,060	1,080	1,170	1,270	1.400	25.6%	29.6%
Region	22,790	24,680	30,080	37,650	41,390	47,010	56,070	65.2%	48.9%
Indiana	440,360	463,350	548,750	627,490	666,540	733,410	833,810	42.5%	32.9%
Nation(000's)	17,884	20,261	22,841	22,225	27,530	30,792	35,608	24.3%	60.2%

Source: U.S. Department of Commerce, Projections provided by Woods & Poole.

2.2.5 Service Employment Trends

The service industry has been by far the fastest growing sector of the national economy. Both personal and business service employment has been on the rise over the last twenty years. Business needs have been changing rapidly and industries such as computer services, financial and accounting services, and health services are examples of the rapidly growing service industry fulfilling these new business needs. **Table 2.2.5** shows the service employment trends for 1980 to 2025.

Nationally, service employment has increased nearly 80 percent between 1980 and 1995. Like the nation, the service industry has been the fastest growing economic sector in the four-county SR 37 study area expanding approximately 105 percent between 1980 and 1995. In 1980, there were 24,440 service jobs in the region. By 1995, there were 50,200 service jobs.

Service employment in Hamilton County increased by a greater percentage than the nation and state between 1980 and 1995. Hamilton County experienced an increase of 282 percent, gaining 15,510 jobs. During this period, the state increased by a little over 76 percent and the nation increased by a little less than 80 percent. Grant County experienced an increase of about 33 percent, Tipton County experienced an increase of 55 percent and Madison County had a growth rate of 56 percent.

Between 1995 and 2025, the region is expected to have service employment growth similar to the nation and state. Hamilton County is predicted to grow by a greater percentage than the

nation and state. Grant, Tipton and Madison counties are expected to grow at rates that are slightly less than that of the nation and the state of Indiana.

Table 2.2.5
Service Employment Trends 1980 to 1995 and
Employment Forecasts 1995 to 2025

								Percent Change	
	1980	1985	1990	1995	2000	2010	2025	1980–1995	1995 – 2025
Grant	6,960	7,850	9,050	10,500	12,090	14,040	18,360	33.7%	74.9%
Hamilton	5,500	9,420	14,160	21,010	27,150	35,600	46,180	282.0%	119.8%
Madison	11,210	12,890	15,380	17,490	18,990	23,480	30,350	56.0%	73.5%
Tipton	770	1,030	1,130	1,200	1,320	1,430	1,590	55.8%	32.5%
Region	24,440	31,190	39,720	50,200	59,550	74,550	96,480	105.4%	92.2%
Indiana	484,750	586,390	732,960	857,730	1,015,980	1,235,200	1,591,020	76.9%	85.5%
Nation(000's)	25,000	31,204	38,663	44,902	53,005	63,833	81,495	79.6%	81.5%

Source: U.S. Department of Commerce, Projections provided by Woods & Poole.

2.3 Population Trends and Forecasts

Recent population trends for the SR 37 study area are displayed in **Table 2.3.1**. The region has a total 2000 population of 406,321. Between 1980 and 2000, the region's population has increased steadily by 27.6 percent. The population projection for the study corridor for the year 2025 is about 17 percent higher than the population in 2000. Only two of the four counties, Hamilton and Tipton, experienced positive population growth in the twenty-year period between 1980 and 2000.

Hamilton County's population, which includes Noblesville, was the only county to grow, by over 122 percent, from 82,027 to 182,740 between 1980 and 2000. Hamilton County is projected to continue its growth by about 38 percent between 2000 and 2025. Grant County's population declined between 1980 and 2000 by over 9 percent. Grant County is expected to sustain a small decrease in its population between 2000 and 2025 of about 3 percent. Madison County's population decreased slightly more than 4 percent between 1980 and 2000. Madison County is projected to maintain its population between 2000 and 2025. Tipton County's population increased slightly more than 3 percent between 1980 and 2000. Tipton County is projected to continue its growth by nearly 6 percent between 2000-2025.

The population of the four counties within the study area is expected to be 474,769 by the year 2025. This is approximately an increase of 17 percent between 2000 and 2025. Hamilton County is predicted to have a net population increase between 2000 and 2025. The population percentage change in the counties within the study corridor is higher than that of the population growth rate of the state of Indiana and lower than that of the nation as a whole. During the same period, 1980-2000, in which the region had a net population increase of 27.6%, the state population grew 10 percent and the population of the entire nation grew 21 percent. This trend of population increases is expected to continue between 2000 and 2025.

Table 2.3.1
Population Trends and Forecasts
by County, Region, State, and Nation—1980-2025

				Projected		Percent Change	
	1980	1990	2000	2010	2025	1980-2000	2000-2025
Grant	80,934	74,169	73,403	72,405	70,578	-9.3%	-3.8%
Hamilton	82,027	108,936	182,740	208,296	253,251	122.8%	38.6%
Madison	139,336	130,669	133,358	133,584	133,120	-4.3%	0.0%
Tipton	16,240	16,140	16,820	17,180	17,820	3.6%	5.9%
Region	318,537	329,914	406,321	431,465	474,769	27.6%	16.8%
Indiana (000's)	5,490	5,544	6,080	6,318	6,645	10.7%	9.3%
Nation (000's)	226,546	248,791	274,520	299,228	336,348	21.2%	22.5%

Note: 2000 data based on population estimates.

Sources: U.S. Bureau of the Census; State and county projections from Indiana University Kelley School of Business, Indiana Business Research Center, http://www.stats.indiana.edu/web/county/projections/99county-projections.html.

2.4 Development Trends and Forecasts

Development within the SR 37 study area has been focused in recent years almost exclusively in those areas adjacent to SR 37. A few shopping centers have been constructed in communities along the route using a large national retail store as an anchor for complementary retail and service businesses. Outside of these communities, agriculture dominates the activity along SR 37. A very small number of businesses are located along these unincorporated stretches of the road.

In Noblesville, recent commercial, financial and industrial development south of the intersection of SR 32 and SR 37 is unprecedented. Noblesville is currently planning a mixed-use industrial and commercial park in this southern area along SR 37. Most recently, a German tool-manufacturing company, Index Corp., has decided to relocate its North American headquarters to southern Noblesville along SR 37. This recent surge in development combined with hospital,

commercial and office development on SR 32 in western Noblesville has significantly changed the face of this community.

In Elwood, new development along SR 37 has occurred most recently between SR 13 and SR 28. This is where Plastech and ELSA industries are located, as well as a shopping center. Within one mile west of the SR 28 and SR 37 intersection, limited commercial development has occurred on SR 28, including a few restaurants and small stores. Recent economic development efforts have focused on the SR 28 and SR 37 intersection. Here, mixed industrial and commercial activities are being sought.

In Marion, SR 37 terminates by merging into SR 9 at the southern edge of the community just north of the Marion Municipal Airport. A few commercial and financial businesses are located at this terminus. However, all varieties of service, financial, retail, entertainment, and industrial establishments line both sides of the road along SR 9 through Marion.

There are a number of large employers that are not located along SR 37 that have added greatly to the local economy. In Noblesville, one of the largest employers in Hamilton County, Riverview Hospital, is located along SR 32. The hospital is owned by the county and employs over 650 people. Red Gold Inc., one of the country's top tomato product producers, employs over 200 in Elwood and around 350 in Orestes, just outside of Elwood. In western Marion, General Motors employs over 1,600 at its Metal Fabricating Division. On the north side of Marion, Thomson Consumer Electronics employs over 2,400 workers.

SECTION 3 - HIGHWAY ROLES AND BENEFICIARIES

Governmental entities are often asked to make highway investments for "economic development" purposes. The rationale for this type of request is that a corridor would be better off due to greater transport efficiency, the possible attraction of additional tourists and new businesses, and the overall improved ability of the corridor region to compete for economic activity. If the improved corridor economy was sufficient to cause the overall economy to be better off, and if that economic improvement was more significant than the cost of the highway, then the highway investment would be deemed feasible from an economic perspective. Of course, the likelihood of a project progressing to construction is not solely dependent on its economic feasibility. However, a project's ability to demonstrate feasibility from an economic perspective might make it more attractive relative to competing potential projects that cannot demonstrate said feasibility.

The Indianapolis metro area has grown faster than other areas of Indiana. The impacts of this growth have contributed to the economies of the surrounding counties, including those in the SR 37 study corridor. Changes made to road structure are meant to promote efficient movement of goods, services, and individuals. Within the context of the economy north of Indianapolis, changes to SR 37 may be able to promote greater travel efficiencies and economic activity, all of which could create additional economic benefits for the entire region.

As the region grows, travelers on the existing SR 37 are likely to experience increased travel time, increased vehicular wear and tear, and increased probabilities of accidents. These future travel

inefficiencies may create disincentives to economic development. According to current and past economic theory, transportation factors, including transportation costs associated with reaching markets as well as those costs associated with obtaining the materials needed for production, are a key component in the consideration of locating a factory or business. As a result, new businesses tend to locate in areas with overall lower transportation costs, all else equal; and existing businesses experiencing significantly higher transportation costs tend to relocate.

Such was the case with the legislation that mandated the continued study of the SR 37 corridor, as has been noted in the statement of study purpose and need. Issues related to the benefits offered through improved travel efficiency, accident reduction, and the economic development potential of an improved SR 37 are central to this economic analysis.

The task at hand in this economic analysis is to assess the ability of each alternative highway investment to enable the attraction of more resources and create greater efficiency. Improvements to SR 37 could have very definite economic development roles to play. The issue is whether the magnitude of the economic development would be sufficiently large to warrant the investment.

3.1 Rationale for Highway Investment

Highways are essentially "tools" used in transporting goods and people from one place to another. Investments in highways contribute to economic development in that they lower transportation and logistics costs, improve people's accessibility and change perceptions of the corridor, thereby causing increased investment and increased traffic. Such changes may be realized in numerous ways, including improved safety, decreases in fuel and other vehicle operations costs, improved awareness of the ability to travel to the corridor, revised logistics or farming patterns, and reductions in noise or air pollution. But in the final analysis, all of the direct benefits of a highway, and therefore the justification for investing in it, flow from using it for transportation.

Benefits from an improved highway may not only accrue to persons and businesses whose vehicles use the highway. Lower transportation costs may be passed on to consumers as lower prices for consumer goods, to workers as higher wages, or to owners of businesses as higher net income. Persons may thus benefit from a highway investment without traveling on the roadway.

It is important to keep in mind that for any of these benefits to occur, the highway investment must either enable significant reductions in transportation costs or cause revised perceptions of the area. If the amount of these savings is small for each trip, if the number of vehicles using the highway is not sufficiently large, or if peoples' perceptions do not change dramatically, the investment will not produce benefits that exceed its cost. Highway investment must be based on reasonable estimates of traffic volumes they will service; the cost savings travelers will experience; and a realistic assessment of revised industrial/tourism/logistics/agriculture/ perceptions.

Investing in a highway improvement that produces benefits that are less than the associated costs of the improvement is counter to economic development. Highway users and other taxpayers would be responsible for supporting the costs associated with highway improvements, either in the form of higher taxes than otherwise would be the case, or through lost opportunities (an alternative

highway would not get improved). These higher taxes work against economic growth within the taxing jurisdiction because they reduce post-tax return to businesses and households. Investment in the "wrong" highway project would similarly retard economic growth. Therefore it is imperative that a potential highway investment be considered economically feasible; if it is not, it is economically counterproductive.

3.2 Travel Efficiency and Economic Opportunities Previously Identified in the SR 37 Corridor

The state of Indiana began examining the SR 37 corridor in 1990, after a request from several state representatives and senators. The impetus behind this request was the desire to promote economic development along the corridor and the idea that the addition of travel lanes to SR 37 would make this area of the state more accessible.

A proper adjustment of the existing SR 37 design could reduce or remove development disincentives related to transportation by decreasing vehicle wear and tear, travel times and decrease the likelihood of accidents. The corridor study completed by INDOT in 1990 concluded that improvements in the form of a four-lane divided highway, were not warranted. However, the study evaluated in detail only one alternative, expanding the roadway to four lanes.

In 1994, the **SR 37 Highway Improvement Task Force, submitted by the Madison County Council of Governments along with local city and county officials from Hamilton, Madison, and Grant Counties** wrote a report, *State Road 37: Corridor Improvement Project*, that expressed the belief that improvements would result in greater accessibility to the Indianapolis region for a larger and more diversified business and service sector. The three counties making up the task force were Hamilton, Madison and Grant counties, three of the four counties included in this corridor study. As the economic and industrial composition analysis of that report shows, these counties have begun the transition from a manufacturing-based economy to a more diversified economic system. These three counties also face the issue of a growing number of individuals commuting between communities for work.

The **Indiana Economic Development Council** put together the *East Central Indiana Comprehensive Development Strategy* in 2000 and included seven counties in the region. Grant and Madison counties were included in those seven, although Hamilton was not. The authors of that study have determined that the East Central region is strongly interconnected and commuting patterns suggest that this is a regional labor market area. The commuting data also suggests that residents are commuting to and from neighboring communities as well as from Indianapolis, Kokomo and Fort Wayne. Because of both the economic and transportation issues facing the region, the Council believes that part of the economic development strategy should be to widen SR 37 from two lanes to four lanes, from Marion to Noblesville, and make this a priority for the region.

3.3 Economic Study Approach

The economic approach used to analyze the investment options, while being tailored to the SR 37 corridor study and INDOT's own MCIBAS process, is one that has been used on previous corridor studies and one that has evolved over the years. For example, this overall methodology has been employed on such highway corridor studies as the following:

- Denver to Scottsbluff Heartland Expressway (Heartland South)
- Scottsbluff to Rapid City Heartland Expressway (Heartland North)
- St. Louis to St. Paul (Avenue of the Saints)
- US 20 Sioux City—Ft. Dodge Corridor
- US 63 Waterloo—Minneapolis Corridor
- Branson, MO Ozark Mountain Highroad

The methodology is comprehensive and credible, and it is one that utilizes accepted economic principles. A summary of the approach includes:

- A definition of the types of improvements to be considered in the corridor (alternative routes and alternative highway standards).
- A generalized estimate of those improvements' costs.
- Estimated use of the improved highways (existing and future use).
- Quantification of estimated economic benefits believed to be attributable to the highway project.
- A comparison of the economic costs and economic benefits attributable to the corridor improvements.
- Conclusions concerning the economic impact and feasibility of investing in the defined corridor.

For purposes of the SR 37 corridor study, economic development is defined as "an increase in the prosperity and incomes of people and institutions." Economic development of this nature in a given area occurs when the incomes and product generated in the area are caused to increase. Such increases occur in either of two ways:

- More Resources—If output were to increase in the area, the increased output would require more resources (land, labor, materials, capital). This would result in increased employment, more incomes earned, and more profits made. If the SR 37 investments enabled the attraction of additional business in the corridor (new firms, or expanded firms), then the highway has aided the economic development process, to the benefit of the corridor areas.

- Efficiency—Even if the highway does not help to create increased output, it could still help economic development by causing the area's output to be achieved at less total cost. Reduced transportation costs due to the highway improvement in this way would yield increased prosperity and income.

3.4 Economic Evaluation Principles

Economic analysis of the SR 37 corridor will follow an established set of evaluation principles.

Comparisons With "No-Build" Case

To calculate each option's costs and benefits, the "improved case" is compared with the "No-Build" Case (the case which includes the existing transportation network plus programmed improvements, and is also referred to as the "No-Build" Alternative). The benefits for each improvement option are calculated by comparing the corridor's "improved case" with the corridor's "No-Build" Case. In this manner each improvement option's "feasibility" is determined and, implicitly, the improvement options can be compared one with the other.

The Economic Impact Area(s)

Improvements in the SR 37 study corridor would contribute to economic development if the improvements provided one of the following:

- Significantly reduced transportation costs.
- Created other business efficiencies.
- Improved accessibility to the area.
- Diverted significant numbers of vehicles, making it possible for businesses to obtain a better return.

By helping to attract more people to the region, and by improving the region's competitiveness, the highway investment helps attract new businesses and expand existing businesses. If the impact area of interest is a rather narrow corridor along the highway, an increase in economic activity is almost certain.

If instead the impact area of interest is the entire state of Indiana, the overall amount of economic development resulting from the highway investment might be less. A certain number of businesses within the region, especially those that are relatively mobile, would relocate to higher access sites within the SR 37 area. While an increase in economic activity may be evident near the

highway, it may not be a net gain to the state of Indiana if the business only relocated from another area in the state.

From the statewide perspective, the highway investment contributes to economic growth if travel costs within the state are reduced or if it creates economic activity within the state. Lower travel costs help improve productivity which, in turn, increases income to firms and individuals. Productivity gains also help enable Indiana-produced goods and services (e.g., tourism) to be more competitive in other states and even in international markets. The key point here is that for a highway investment to contribute to state economic growth, it must significantly reduce transportation costs, or draw economic activity to the state from other states.

In the SR 37 corridor area, the economic development impacts are developed for two regions:

1. **Corridor Region**—The economic impacts are estimated for a defined impact region, in this case the four counties comprising the SR 37 study corridor

2. **Total State**—The economic impacts are also estimated for Indiana.

Economic Benefit Types

The study will investigate ways that the local corridor economy and the state could benefit from the improved highway. These benefit types include the following:

- **Travel Efficiency**—Vehicle users will benefit due to faster average travel speeds (time savings), reduced accident rates (safety), and improved traffic flow (vehicle operating costs). Truck travel will similarly be faster, cheaper and more reliable. Such benefits are valuable to the corridor region, the state, and the nation.

- **Act of Highway Construction**—State or federal money spent in the corridor region to build the highway is of economic value to the corridor since wages are paid and material is purchased. Such money, however, is not a benefit statewide unless there is a "net" inflow of federal funding that without the highway would not exist within the state.

- **Improved Competitive Position**—Such transportation improvements will remove one impediment to economic activity attraction and growth. Improved transportation should enable the corridor areas to better compete for economic activities, meaning that business activity will be expanded in, or otherwise attracted to, the local economy. Some of these benefits are also valuable at the state level.

- **Tourism Attraction**—If the improved highway helps to attract additional tourists to the area, that will be helpful to the local economy and to the economy of the state due to spending by the attracted tourists.

- **Roadside Business**—Similarly, the highway improvements will divert traffic to the corridor, and this additional traffic will increase the local sales revenues of roadside businesses.

Travel efficiency is assessed using benefit/cost analysis. The other types of benefits are grouped under the umbrella of economic development. The evaluation of travel efficiency and economic development are described later in this section. Any and all of the above are of economic value to the primary impact area economy, all have economic development implications, and all are included in this study at the local economy level.

Transfer Impacts and Proper Level of Investment

SR 37 in its most generic sense serves as an Indiana state route within the greater state and national highway network. Any changes to SR 37 must be coordinated with this network. There are real economic consequences of either underinvesting or overinvesting in highway construction; therefore, any changes proposed for SR 37 must be reviewed in the larger context of the state's needs. If the state overinvests in the SR 37 corridor, overall efficiency will suffer because those funds could have been put to better, more efficient use elsewhere (other highways could have been built, or existing highways could be maintained to a higher level, or schools could have been built, or money could have been left in the taxpayers' pockets). If the state underinvests in SR 37, economic development could be inhibited because real and perceived travel costs will be greater.

Additionally, there are other very significant highway studies being conducted in Indiana in which SR 37 may or may not have a direct role. What is clear is that changes proposed for SR 37 cannot add to the problems identified in the following studies:

- US 31 Improvement Project—A project (EIS phase) just to the west of the SR 37 study is currently evaluating the major north-south route for Hamilton County. According to this study, many locations on US 31 are projected to have a failing level of service (LOS) by 2020. In order to relieve and avoid these traffic problems many changes to US 31 as well as to land-use patterns may be necessary.

- Hoosier Heartland Highway—The Hoosier Heartland Highway Corridor Study indicates that there may be some substantial changes occurring to the highway system across the northern portion of the SR 37 study area. It proposes making improvements to the SR 25 corridor from Toledo, Ohio to Lafayette, Indiana, a distance of approximately 200 miles. If completed, the Hoosier Heartland Highway Corridor will connect I-69 in Fort Wayne to I-65 in Lafayette.

- I-69 Evansville to Indy EIS Study—The current I-69 studies being conducted throughout the country as well as the sections in Indiana from Evansville to Indianapolis and from Henderson, Kentucky to Evansville, for example, will have a great impact on long-distance travel through this area.

Recognizing these facts, this study seeks to define those highway investments, and those levels of investment, that are efficient (neither underinvested nor overinvested). This implies

efficient and feasible use of tax dollars. The proper level of investment is calculated in terms of ***travel efficiency*** and ***economic development***.

3.5 Travel Efficiency Evaluation

Transportation efficiency is a legitimate local corridor, regional, state and even national goal. If a road improvement creates road user cost savings that, over time, exceed the cost of the road improvement, then that road improvement should be implemented.

Road Improvement Costs

The cost side of the benefit/cost calculation includes two costs: 1) the "capital costs" of constructing the highways, and 2) the annual change in highway maintenance costs. Only the capital costs attributable to the road sections that are not yet programmed for improvement are included. All costs are stated at constant base year price level (exclusive of future inflation).

- Capital Costs—Capital costs comprise the cost of improving the "not programmed" road sections, including right-of-way acquisition, planning, design, and construction.

- Road Maintenance Cost—Once the highway improvements are in place, there will be more roads to maintain than previously. However, those will be "new" roads. The resulting net change in maintenance and operations cost is used.

Travel Efficiency Economic Benefits Attributable to the Highway Improvements

The travel efficiency benefits of the highway improvements are of three types: vehicle operating cost savings, accident cost savings, and value of travel time savings. Such benefits are calculated for two vehicle types: cars and trucks. All benefits were assumed to start in the study's base year (the first year following the capital cost outlays) and are expressed by year of occurrence. Benefits are estimated for two analysis years: intermediate year benefits are interpolated between the two analysis years in straight line fashion.

- Vehicle Operating Cost Savings—Car and truck operating cost savings estimates are made using the procedures recommended for use by the American Association of State Highway and Transportation Officials (AASHTO). The vehicle operating cost changes reflect differences in vehicle miles of travel, travel speed changes, and other changes that affect vehicle operations.

- Accident Cost Savings—Because highway standards will be improved, the SR 37 investments can be expected to reduce accident potentials. Changes in accident rates are established by highway type based on accident histories provided by Indiana Department of Transportation.

Accident rates are established for three accident types (fatal, injury, property damage). Monetary values are established for each.

- Travel Time Savings—The SR 37 investments will save car and truck travel time. Estimates of travel time savings are made for common, diverted, and generated traffic. Values of time are suggested by FHWA procedures and policies.

The calculation of all three types of transportation efficiency impacts (vehicle operating costs, accident costs, time value costs) is consistent with FHWA procedures and policies.

Whenever a highway improvement is expected to cause traffic diversion between roads, or is expected to cause additional trips to be made (generated or induced travel), "consumer surplus" is used in estimating operating cost and travel time savings. Consumer surplus is the price (user cost) that travelers are willing to pay to use the highway improvement, rather than the price actually paid. Some of the diverted or generated traffic would have made the change with only a fraction of the cost change (the cost change created by the highway improvement), while others require the total cost change. Consumer surplus measures this difference in willingness to pay, and estimates the average cost savings as a measure of economic benefit.

3.6 Economic Impact Evaluation

Highway improvements of the types envisioned for SR 37 would make travel faster, easier, and more efficient. In the process it would divert traffic from various other highways to the SR 37 corridor, and it would also generate traffic. All of these events would be most welcome, not only because of the travel efficiencies and the improved perception of the area but also because of what these travel efficiencies and perceptions could mean to the economies along the highway.

Some residents believe that the area would be better off economically with the highway improvements than without them. Most certainly this is true. The key issues are: 1) What magnitude of economic impact could be expected? and 2) Is that impact sufficient cause to warrant a major highway investment in the SR 37 corridor?

REMI Econometric Model

The economic impact portion of the study relied on an interregional economic model of the state's counties. The "REMI" set of models are private sector models owned by Regional Economic Models, Inc. of Amherst, Massachusetts. This model package has also been applied to a number of highway corridor evaluations and has the advantage of being dynamic in nature by adjusting to specific economic and policy changes. The model is a key component of the economic evaluation process utilized by the Indiana Department of Transportation's MCIBAS.

The REMI model is a comprehensive forecasting and simulation system useful for policy and investment analysis in a wide array of issues. The REMI model does have some similarities to

input-output models. The model is structured to incorporate inter industry transactions along with feedback from final demand activities. The model determines the proportion of intermediate and final demand that is fulfilled by producers in each corridor region. Demand not fulfilled by local production leads to imports. The REMI model differs from regular input-output models in its ability to allow substitution among factors of production in response to changes in relative factor costs over time. Within the model, wages are responsive to changes in labor market conditions, migration is responsive to changes in expected income, and the share of local and export markets responds to changes in regional profitability and export costs.

Simulations with the model can be used to estimate the economic and demographic effects of policy and investment interventions in the corridor such as economic development programs; infrastructure investments including new highway construction; energy and natural resource conservation programs; state and local tax changes; and other policies. The policy simulation compares the performance of a corridor after a policy intervention with the projected performance of the region based on national forecasts of industry growth, changing technology and estimates of the shifting competitive position of each industry in the corridor region compared to that industry elsewhere in the country and elsewhere in the state.

Economic Impact Terms and Definitions

An investment in the SR 37 corridor could yield many different forms of benefit to the regional economy. In order to recognize these diverse impacts in a consistent fashion, a single set of "indicators of impact" and a single set of definitions are used throughout the economic impact calculations. The economic impacts are expressed in terms of four "indicators of economic impact:"

- Value Added—The value of the corridor area's firms' output minus the value of the inputs they purchase from other firms. In the corridor study it is the value added by firms located in the defined corridor impact areas, including employee compensation, proprietary income, indirect business taxes, and other property income. The value added estimates are used in the economic development benefit/cost analysis.

- Wages—Total increases in payroll costs (wages and salaries and benefits) paid by local industries due to the improved highway.

- Employment—Job impacts are expressed as "full-time equivalents" (FTE's) and included the number of person job years due to road construction and road use, plus the share of those that are employed in sectors that directly or indirectly support the construction process, the road users, the tourist industry and the firms that might expand in or locate to the corridor region.

- Population—Total family population dependent on the new jobs created by the highway project.

Economic Development Impact Types

The SR 37 investments could cause a number of events to occur that would be beneficial to local or state economies. These events are categorized into five types.

- Act of Highway Construction—The act of spending large sums of construction money in an area is of economic value to that area.

- Corridor Competitive Position—By reducing the cost of doing business, a state or region strengthens its business climate. Facilitating faster, safer travel along the corridor represents a logical means for increasing competitive advantage of communities along it.

- Roadside Service Industries—This includes businesses that serve roadway users such as gasoline stations, hotels/motels, and restaurants. A corridor improvement would cause greater traffic density and consequently attract additional roadside services to serve the increase traffic volumes

- Tourism Activity—SR 37 improvements could also cause a net increase in the number of tourists visiting the area.

- Employment—Highway improvements could aid in the achievement of existing job retention and the attraction of new job opportunities. REMI analyzes this in four ways:
    - Construction jobs and related expenditures for goods and services
    - Competitive position jobs
    - Traveler and tourist expenditure jobs
    - Consumer respending jobs.

SECTION 4 - ASSESSMENT OF POTENTIAL LOCAL ECONOMIC DEVELOPMENT ROLES AND OPPORTUNITIES

Within the context of this SR 37 regional economy, changes in the highway system may have several economic development roles to play, all of which could create additional economic benefits in the region. The following potential roles and benefits were developed based on travel efficiency and economic development benefits and coordinated with the study purpose and need that emphasized the safety, travel efficiency and mobility, and economic development. These potential roles and benefits include:

- Travel Efficiency—Existing traffic, both business and personal, experiences increased travel time, increased vehicular wear and tear, and increased probabilities of accidents traveling the existing highways through the SR 37 corridor. Long-distance trips that could potentially utilize the corridor currently use I-69 and drive out of the way to avoid the highway facilities in the

region. Existing businesses have higher transportation costs to ship goods to market and receive goods for production. Potential new businesses choose to locate in areas with lower transportation costs. The existing travel inefficiencies are creating disincentives to economic development in the region. An improved highway system could help reduce or remove those disincentives.

- Safety/Crash Reductions—A component of travel efficiency, the reduction of accidents can directly be translated into benefits such as reduced loss of life and property, and also by gains in efficiency due to improved travel conditions. The need to address safety concerns is a primary focus of this corridor study.

- Community Access—New highways, especially four-lane highways, can help small communities to compete for new and expanding industry, or provide better access to opportunity in nearby communities. This is particularly applicable in Elwood and Marion, offering better access to the Indianapolis metro area. These are communities where population totals have been slowly declining in the last thirty years and changes in agricultural production have created a need to diversify their economic base.

- Improve Roadway Deficiencies—There are several known design deficiencies along the current SR 37. Addressing these deficiencies could lead to benefits from a travel efficiency and safety perspective

- Economic Development:
    - Roadside Expenditures—US 31 and I–69 currently service the majority of long-distance trips in the region. There is a possibility, albeit slight, that an improved SR 37 could play a greater role in regional travel. An expanded role could create additional roadside expenditures in the SR 37 corridor. Roadside expenditures include additional revenue for typical drive-by businesses, such as restaurants, service stations, and hotels.
    - Tourism—If the changes in the highway system cause more tourist travel through the region, then the SR 37 corridor could gain additional tourist-related revenues.
    - Agricultural Access—The overwhelming majority of the region has large amounts of agricultural production and the need for agricultural support services. Improved highways could improve agricultural efficiency and improve travel efficiency in the movement of product and related goods and services.

4.1 Assessment of Role and Benefits Offered by Preliminary Alternatives

Each of the seven alternatives consists of varying degrees of roadway improvements. The potential roles and benefits offered by each alternative are assessed below. It must be noted that this is only a cursory assessment based on how the types of facilities related to each alternative may promote travel efficiency and economic development. The remainder of this economic analysis will assess the actual travel efficiency and economic development benefits gained versus the costs of the

associated improvements in order to establish the feasibility of these improvements. The alternatives and their potential roles and benefits are discussed below.

Alternative 1— "No Build"

From a travel efficiency perspective, some benefits could be gained through intersection improvements and roadway/bridge rehabilitation, especially if the improvements were made to areas of the corridor that currently experience higher than average crash rates. It would be highly unlikely that a No Build scenario would realize any economic development benefits, since the nature of the existing corridor would remain the same and there would be few if any gains in travel efficiency.

Alternative 2—Improved Two-lane Highway from Noblesville to Marion

The primary benefits resulting from these improvements would come in the way of travel efficiency savings. The improvements would likely lead to improved travel speeds, reduced travel time, and a reduction in crashes. There could be some economic development benefits in terms of improved competitive position for business, due primarily to increased travel efficiencies. However, such benefits would probably be negligible with a two-lane highway.

Alternative 3—Four-lane Expressway (non-freeway) from Noblesville to Marion

The travel efficiency benefits offered by this alternative would likely be greater than those offered by the first two alternatives. Improving the existing highway to an expressway (but not full freeway), type facility would address existing deficiencies. Addressing existing deficiencies and the addition of two travel lanes should produce savings to travelers in the form of improved travel speeds, reduced travel times, and reduced crash rates. Again, a key to realizing these benefits would be the extent of access permitted to the new highway. This is especially true in and around Strawtown and Elwood, where the bypasses could be located, and to a lesser extent near the project termini in Marion and Noblesville. This alternative would have partial access control, with direct access limited to select public crossroads.

Because of the likely travel efficiency benefits, the study corridor could realize economic development benefits deriving from improved competitive position. The improved travel efficiencies could be significant enough that business could see economic benefit through a decrease in travel costs. There could also be an increase in competitive position due to the perception offered by a new four-lane highway. The new highway would likely help existing business, and the potential for new businesses locating in the corridor exists because of the improved nature of the highway. The effect that potential bypasses have on Elwood and Strawtown business would have to be addressed in this alternative, just as they would with any alternative that involves a bypass.

Alternative 4—Four-lane Freeway from Noblesville to Marion

This alternative would likely be one of the alternatives that offered the greatest potential to realize travel efficiency benefits in the study corridor. Any upgrade of an existing two-lane highway to a freeway would address deficiencies of the existing highway and likewise would realize significant savings to travelers in the form of travel time savings, reduced operating costs, and reduced crash rates. From a benefit/cost perspective, the gains in travel efficiency could be outweighed by the agency right-of-way acquisition and construction costs associated with a new freeway.

This alternative has the potential to offer more economic development benefits than most of the other alternatives. The improved travel efficiencies would offer the best opportunity for existing firms to improve their competitive position. Also, the improved highway would offer potential gains to the regional economy in the form of new business that located in the corridor because of improved regional access and mobility. There could be some increase in business, either in the form of increased spending or new businesses related to tourism and roadside services. However, from a broader perspective, long-distance travelers would likely remain on I-69 or US 31, so there would likely be few if any gains in this respect. Also, the effect on existing business would have to be compared to the other potential economic benefits since they would no longer have direct access to SR 37.

Alternative 5—Four-lane Expressway (non-freeway) from Noblesville to Elwood, Improved Two-lane Highway from Elwood to Marion.

This alternative would likely experience travel efficiency and economic development benefits in the Noblesville to Elwood segment. From Elwood to Marion, the benefits would be similar to those found in Alternative 2, which would improve the existing highway. A primary issue to assess in the study would be the effect of relocations on the Strawtown and Elwood areas.

Alternative 6—Four-lane Divided Expressway (non-freeway) from Noblesville to SR 213, No Build from SR 213 to Marion.

The benefits and roles offered by this alternative mirror the alternatives from which it was derived. There would be some potential travel efficiency benefits offered, most likely in the "No Build" segment of the corridor. Benefits derived by the four-lane improvement would be dependent on the amount of development that was allowed to have direct access to the highway. The greater the direct access, the more potential travel efficiency would diminish. There would be few if any economic benefits, as any new business on the improved road would be a relocation of an existing business from within the study corridor.

Alternative 7 - SR 37 Relocation from SR 13 South to I-69

Along with Alternative 5, this alternative would likely offer great potential to realize travel efficiency benefits in the study corridor. Any upgrade of an existing two-lane highway to a freeway

would address deficiencies of the existing highway and likewise would realize significant savings to travelers in the form of travel time savings, reduced operating costs, and reduced crash rates. From a benefit/cost perspective, the gains in travel efficiency could be outweighed by the costs associated with a new freeway.

This alternative could also offer great potential for economic development benefits. The improved travel efficiencies would offer the best opportunity for existing firms to improve their competitive position. Also, the improved highway would offer potential gains to the regional economy in the form of new business that located in the corridor because of improved regional access and mobility. There could be some increase in business, either in the form of increased spending or new businesses related to tourism and roadside services. However, from a broader perspective, long-distance travelers would likely remain on I-69 or US 31, so there would likely be few if any gains in this respect. Also, the effect on existing business would have to be compared to the other potential economic benefits since they would no longer have direct access to SR 37

SECTION 5 - CONCLUSIONS

The following conclusions regarding employment, population, development, and the potential roles and benefits of an improved SR 37 were drawn from the examination of existing conditions in the study area. The significance of the benefits would be dependent on the type of alternative implemented.

5.1 Hamilton County Conclusions

- Improvements to the current SR 37 facilities in Hamilton County between SR 32/38 and SR 213 are necessary to lower the injury crash rate, which currently exceeds the statewide average. Lower injury crash rates are a travel efficiency benefit.

- In some segments of the corridor, the facility (base year 2001) peak hours or traffic demand perform unsatisfactorily which would warrant capacity improvements for the long term.

- Hamilton County has played a significant role in employment growth in the study area and is projected to continue at a rate that is more than double the statewide and national forecast.

- Hamilton County experienced growth in excess of 250 percent in the following sectors: agricultural services, construction, services, and finance, insurance, and real estate.

- The county population more than doubled between 1980 and 2000, and is expected to grow by approximately 25 percent over the next 20 years.

- An improved SR 37 could benefit the county by making Noblesville more accessible from other portions of the study corridor.

- Greater travel efficiency benefits would likely be afforded to residents in the vicinity of Strawtown than in Noblesville, since the Strawtown area would be more likely to access the highway improvements.

- The degree of access provided on an improved SR 37 could affect the level of travel efficiency benefits. The more access is controlled, the greater chance there would be that travel efficiency benefits would be maximized.

- Regardless of the potential alternative, the effect of highway realignment on Strawtown will be an important part of the travel efficiency and economic benefit analysis.

- Alternatives 4 and 7 have the potential to generate the greatest benefit to the Hamilton County portion of the corridor. They also have the potential to be the most expensive alternative.

- Each alternative appears to offer some improvement for existing roadway deficiencies and safety concerns. The four-lane highway options would likely offer the greatest benefits at a higher agency cost.

- Only the expressway and freeway alternatives would have the potential to offer slight economic development benefits other than those associated with improved competitive position.

5.2 Madison County Conclusions

- Improvements to the current SR 37 facilities in Madison County are necessary to lower the fatality and injury crash rates, which currently exceed the statewide average in portions of the corridor. Lower injury crash rates are a travel efficiency benefit.

- In some segments of the corridor, the facility (base year 2001), the peak hours or traffic demand perform unsatisfactorily which would warrant capacity improvements for the long term south of SR 28.

- Madison County employment levels grew at a positive rate between 1980 and 1995, but a rate that was less than state and national percentages.

- The loss of employment in the farming and manufacturing sectors, coupled with growth in the retail trade and service sectors, suggests that the county is moving from an export-oriented economy to an import-oriented economy.

- The slight population loss experienced in the last twenty years should taper off, as forecasts project a slight increase in county population.

- Improvements to SR 37 have potential travel efficiency benefits for county residents, the degree of which is dependent on the type of improvement.

- Improvements to SR 37 should improve mobility and access to other portions of the study area and to the Indianapolis metro area. The degree of mobility improvements is dependent on the alternative.

- Alternatives 4 and 7 would likely offer the most potential travel efficiency and economic development benefits. The extent of these benefits would be dependent on the costs associated with the alternative.

- Each alternative appears to offer some improvement for existing roadway deficiencies and safety concerns. The four-lane highway options would likely offer the greatest benefits at a higher agency cost.

- The effect of a potential realignment on existing Elwood businesses should be a focus of the economic feasibility analysis.

5.3 Grant County Conclusions

- Improvements to the current SR 37 facilities in Grant County near Marion are necessary to lower the fatality and injury crash rates, which currently exceed the statewide average in portions of the corridor. Lower injury crash rates are a travel efficiency benefit.

- Crash rates in the section of SR 37 in southern Grant County are below the statewide average and may not warrant roadway improvements.

- In most segments of the corridor, the facility (year 2025), the peak hours or traffic demand in Grant County perform satisfactorily which may not warrant capacity improvements for the long term.

- During the past twenty years, the growth in the retail and service sectors helped offset loses in the farming and manufacturing sectors.

- Employment levels are forecasted to grow by approximately 12 percent over the next twenty years, primarily due to growth in the retail and service sectors. The trend toward becoming an import-oriented economy is likely to continue.

- The percentage decline in county population is expected to lessen over the next twenty years.

- Potential realignments will only be an issue for those Grant County residents traveling to the southern portion of the study corridor. A realigned highway near Elwood or Strawtown would likely not affect Grant County businesses.

- The four-lane highway alternatives have the greatest potential of offering travel efficiency benefits and competitive position benefits for Grant County.

- Each alternative appears to offer some improvement for existing roadway deficiencies and safety concerns. The four-lane highway options would likely offer the greatest benefits at a higher agency cost than 2-lane options.

- Only the expressway and freeway alternatives would have the potential to offer slight economic development benefits other than those associated with improved competitive position.

- Alternatives 4 and 7 would likely offer the most potential travel efficiency and economic development benefits. The extent of these benefits would be dependent on the costs associated with the alternative

5.4 Tipton County Conclusions

- Improvements to the current SR 37 facilities in Tipton County are necessary to lower the Fatality and Injury Crash Rates, which currently exceed the statewide average in portions of the corridor. Lower injury crash rates are a travel efficiency benefit.

- Improvements to SR 37 have potential travel efficiency benefits for county residents, the degree of which is dependent on the type of improvement.

- Improvements to SR 37 should improve mobility and access to other portions of the study area and to the Indianapolis metro area. The degree of mobility improvements is dependent on the alternative.

- Alternatives 4 and 7 would likely offer the most potential travel efficiency and economic development benefits. The extent of these benefits would be dependent on the costs associated with the alternative.

Each alternative appears to offer some improvement for existing roadway deficiencies and safety concerns. The four-lane highway options would likely offer the greatest benefits.